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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,768	01/16/2004	Gunther Herdin	TRG-322	8358
7590	12/23/2005		EXAMINER HOANG, JOHNNY H	
Mark D. Lorusso Lorusso Loud & Kelly LLP 15 Rye Street, Suite 312 Portsmouth, NH 03801			ART UNIT 3747	PAPER NUMBER

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,768

Applicant(s)

HERDIN ET AL.

Examiner

Johnny H. Hoang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/25/05, 01/16/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicants provisionally elected without traverse of Group 1, including claims 1-27, and 29-45, in the action filed on October 26, 2005 is acknowledged and placed in the file. Accordingly, the non-elected claim 28 has not been examined on its merit.

Claim Objections

2. Claims 35, and 36 must be canceled because they are in the same species with claim 28, which is including 2 laser light sources.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-27, and 29-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are replete with double recitations, terms that lack antecedent basis, and unclear language too numerous to mention in every instance. The following are several examples:

Claim 1, line 3, "*the temperature...*" lacks of antecedent basis.

Claim 1, line 3, "*the combustion chamber*" lacks of antecedent basis.

Claim 1, line 4, "*the spontaneous ignition*" lacks of antecedent basis.

Claim 1, line 5, "*the ignition of...*" lacks of antecedent basis.

Claim 1, line 6, "*the introduction...*" lacks of antecedent basis.

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Claim 2, line 4, "*the fuel/ignition mixture*" must be changed to *the fuel/air mixture*--.

Claims 4-6, line 2, "the mixture" must be change to *the fuel/air mixture*--.

Claims 8-11, line 1, "the air/fuel ratio" must be changed to *the fuel/air mixture*--.

Claim 14, line 3, "*the focusing*" lacks of antecedent basis.

Claim 17, line 2, "*the laser light source*" lacks of antecedent basis.

Claims 18-20, and 22-26 must depend on claim 17 instead of claim 1.

Claim 27 is indefinite.

Claim 30, line 2, "a combustion chamber window" is double recitation.

Claim 31 must depend on claim 29 instead of claim 1.

Claim 33, "the crankshaft angle", "the speed", "the engine power", and "the current cylinder pressure" lack of antecedent basis.

The claims not specifically mentioned are indefinite since they depended from one of the above claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-17, 29, 31, 32, and 37-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukainakano et al (US 4,523,552) in view of the design choices.

Regarding claim 1, the reference of Mukainakano et al disclosed the claimed invention: an ignition device including multi cylinder type internal combustion engine, a fuel/air mixture can be compressed in the cylinder (see Figures 1-4; col. 4, lines 12-33), the particles having reached

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the light-beam condensing point (17) absorbs energy of the high intensity light to be rapidly heated to be brought to a high temperature condition or a plasma condition, so that owing to be the heat energy or plasma energy thus produced the particles serve as an ignition source to ignite the fuel-air mixture (col. 4, lines 4-11), and the ignition of the combustion is time-controlled through the introduction of laser light into the combustion chamber (col. 2, line 44 through col. 3, line 64). The reference of Mukainakano et al does not disclose the range of the spontaneous ignition temperature is at least over 80% and up to at most 98%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or values involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Claims 2-9 are rejected the same reasons as discussed in claim 1.

Regarding claims 10, and 11, the reference of Mukainakano et al disclosed the claimed invention except the air/fuel ratio greater than 1.5, and 1.8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or values involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Regarding claims 12, and 13, the reference of Mukainakano et al disclosed the claimed invention except geometry compression ratio greater than 14, and 16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or values involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

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Regarding claims 14-17, 29, 31, 32, and 37-45, as rejected in claim 1, and see the specification of prior art for more details.

Allowable Subject Matter

6. Claims 18-27, 30, 33, and 34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnny H. Hoang whose telephone number is (571) 272-4843. The examiner can normally be reached on 8:00Am-6:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on (571) 272-4856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHH
December 19, 2005

Johnny H. Hoang
Examiner
Art Unit 3747


Willis R. Wolfe
Primary Examiner